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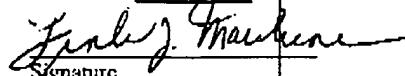
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants : Thomas Mecklenburg et al.
Application Number : 10/576,457
Filed : April 20, 2006
Title : MOLDING COMPOSITIONS COMPOSED OF
A GLASS FIBER-REINFORCED OLEFIN
POLYMER
Group Art Unit : 1796
Examiner : Robert D. Harlan
Docket No. : LU 6139 (US)

Mail Stop: Appeal Brief—Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

I. REAL PARTY IN INTEREST

The real party in interest is Basell Polyolefine GmbH.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, their representatives, or their assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

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III. STATUS OF CLAIMS

Claims 1-9 and 11, 12, and 14-16 are on appeal. After the Final Office Action, claims 1, 9, and 11 were amended, claims 10 and 13 canceled, and claim 16 was added. These amendments after the Final Office Action were considered entered by the Examiner.

IV. STATUS OF AMENDMENTS

No amendments are made in this Appeal Brief. After the Final Office Action, claims 1, 9, and 11 were amended, claims 10 and 13 canceled, and claim 16 was added. These amendments after the Final Office Action were considered entered by the Examiner.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

There are three independent claims on appeal: claims 1, 9, and 11. Claim 1 claims a molding composition composed of an olefin polymer containing a) from 5 to 50% by weight of glass fibers which are bonded to the olefin polymer by means of a compatibilizer, and b) from 5×10^{-3} to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent. Suitable glass fiber is described in Specification, page 3, lines 6-14. Suitable olefin polymers are described in Specification, page 5, line 13, to page 6, line 30. Suitable compatibilizers are described in Specification, page 3, line 38, to page 4, line 3. The concentration of phthalocyanine pigment is described in Specification, page 4, lines 20-23.

Claim 9 claims a process for producing a molding composition which comprises from 5 to 50% by weight of glass fibers which are bonded to a propylene polymer by means of a compatibilizer, and from 5×10^{-3} to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent. Suitable propylene polymer is described in Specification, page 5, lines 35, to page 6, line 30. The process comprises initially melting the propylene polymer in a mixing apparatus; mixing the melted propylene polymer with the nucleating agent at a temperature

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of from 180 to 320°C, thereby forming a melt; and mixing the glass fibers with the melt. See Example 1, page 8.

Claim 11 claims an article produced from a molding composition comprising: from 5 to 50% by weight of glass fibers which are bonded to a propylene polymer by means of a compatibilizer, and from 5×10^{-3} to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent, the article being selected from the group consisting of a wash liquor vessel, water pump casing, and motor vehicle part. See Specification, page 7, lines 21-28.

VI. GROUNDS OF REJECTIONS TO BE REVIEWED ON APPEAL

Obviousness rejection of claims 1-9 and 11-15 over EP 0 663 418 B1 (Yoshino et al.) in combination with U.S. Pat. No. 5,931,997 (Babler) and U.S. Pat. No. 5,056,426 (Warych).

VII. ARGUMENTS

The Examiner rejected claims 1-9 and 11-15 under 35 U.S.C. § 103 (a) as being obvious over EP 0 663 418 B1 (Yoshino et al.) in combination with U.S. Pat. No. 5,931,997 (Babler) and U.S. Pat. No. 5,056,426 (Warych). Appellants canceled claim 13 and added claim 16 which depends from claim 3. Appellants believe that remaining claims 1-9, 11, 12, and 14-16 are non-obvious over the above cited references and respectfully request that the Board of Appeals reverse the Examiner's rejection for the reason that follows.

The invention relates to a molding composition which is composed of a glass fiber-reinforced olefin polymer and from 5×10^{-3} % to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent. See claim 1. The invention provides the polyolefin composition which exhibits improved matrix binding of the glass fiber and therefore better mechanical properties and resistance to hot water, especially in the presence of detergents. See Specification, page 2, lines

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24-27. As discussed in the background of the invention, glass fiber-reinforced polyolefin and the use of a nucleating agent in polyolefin are known. However, what was unknown prior to this invention is the claimed combination of a glass fiber-reinforced polyolefin with a selected nucleating agent (i.e., phthalocyanine pigment); and what was unknown prior to this invention also is the unexpected effect of such a combination, i.e., improved mechanical properties and resistance to hot water of the molding composition.

Appellants do not disagree with the Examiner that Yoshino et al. discloses a glass fiber-reinforced polyolefin molding composition. In fact, Appellants disclosed and discussed this reference in the background of the invention. Nevertheless, Yoshino et al. does not teach or suggest the use of phthalocyanine pigment in the molding composition. On the other side, Warych teaches the use of phthalocyanine pigment as a nucleating agent in polypropylene, but it does not teach the use of a glass fiber-reinforced polyolefin. Further, Babler teaches the use of phthalocyanine as a coloring agent in coatings, plastics and fibers. The amount of phthalocyanine used by Babler can be as high as 30 wt% in contrast to the up limit of 0.05% in Appellants' claimed composition. Nevertheless, the Examiner concludes that the claimed invention is obvious in view of the combined references, citing the Supreme Court's decision in KSR Int'l Co. v. Teleflex, Inc. In KSR, the Supreme Court states: "the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." Appellants believe that the Examiner's obviousness analysis is inconsistent with KSR because the Examiner ignored the Supreme Court's instruction on the finding of "predicted results."

As discussed above, Appellants' invention yields unexpected results; that is, the combination of a glass fiber-reinforced polyolefin and a phthalocyanine provides the molding composition of the invention with improved mechanical properties and resistance to hot water. See Tables 1-3 on pages 11-12. The

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results indicate that the composition containing 0.05% of phthalocyanine pigment (Example 2) has better hot water resistance than that containing 0.1 % of phthalocyanine pigment (Example 1, which is above the up limit of phthalocyanine concentration of claim 1). These results are not predicted by any of these three references or any combinations thereof. Particularly, viewing these results against Babler which teaches the use of phthalocyanine pigment as a coloring agent and in such use the amount of phthalocyanine pigment (preferred amount from 0.1 to 10%), Appellants' results are indeed surprising and unpredictable. Therefore, under the Supreme Court's decision in KSR, the claimed combination is not obvious because it yields unexpected results.

In view of the above arguments, Appellants respectfully request that the Honorable Board of Appeals reverse the Examiner's above obviousness rejection and allow Appellants' claims 1-9, 11, 12, and 14-16.

Respectfully submitted,
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Enclosures: Appendices VIII-X

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VIII. CLAIMS APPENDIX

1. A molding composition composed of an olefin polymer containing
 - a) from 5 to 50% by weight of glass fibers which are bonded to the olefin polymer by means of a compatibilizer, and
 - b) from 5×10^{-3} to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent.
2. The molding composition as claimed in claim 1, wherein the olefin polymer is a propylene polymer.
3. The molding composition as claimed in claim 1, wherein the glass fibers are cut glass fibers.
4. The molding composition as claimed in claim 1 containing from 10 to 40% by weight of glass fibers.
5. The molding composition as claimed in claim 1, wherein the compatibilizer comprises an olefin polymer functionalized with polar groups.
6. The molding composition as claimed in claim 5, wherein the functionalized compatibilizer comprises an olefin polymer grafted with maleic anhydride and an aminosilane or epoxysilane.
7. The molding composition as claimed in claim 2, wherein the propylene polymer is a propylene homopolymer.
8. The molding composition as claimed in claim 1, wherein the olefin polymer has a melt-mass flow rate to ISO 1133 at 230°C and 2.16 kg of between 0.5 and 100 g/10 min.
9. A process for producing a molding composition comprising
 - a) from 5 to 50% by weight of glass fibers which are bonded to a propylene polymer by means of a compatibilizer, and

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b) from 5×10^{-3} to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent,

the process comprising initially melting the propylene polymer in a mixing apparatus; mixing the melted propylene polymer with the nucleating agent at a temperature of from 180 to 320°C, thereby forming a melt; and mixing the glass fibers with the melt.

10. (Cancelled).
11. An article produced from a molding composition comprising:
 - a) from 5 to 50% by weight of glass fibers which are bonded to a propylene polymer by means of a compatibilizer, and
 - b) from 5×10^{-3} to 5×10^{-2} % by weight of a phthalocyanine pigment as a nucleating agent, the article being selected from the group consisting of a wash liquor vessel, water pump casing, and motor vehicle part.
12. The article of claim 11 wherein the motor vehicle part is a covering part.
13. (Cancelled).
14. The molding composition of claim 4 containing from 20 to 40% by weight of glass fibers.
15. The composition of claim 8 wherein the melt-mass flow rate is between 2 and 30 g/10 min.
16. The composition as claimed in claim 3 wherein the glass fibers have a length from 3 to 6 mm and a diameter from 10 to 20 μm .

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IX. EVIDENCE APPENDIX

None.

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X. RELATED PROCEEDINGS APPENDIX

None.